

AMENDMENTS TO THE CLAIMS:

Claim 1 (Currently Amended) ~~An~~ A non-air based electrochemical cell that releases energy upon the introduction of an aqueous activator to a solid alkali peroxide of a cathode of the cell, the electrochemical cell comprising:

an aluminum anode;

a first fiberglass cloth;

an aqueous electrolyte solution positioned between the first fiberglass cloth and the aluminum anode;

a cathode comprising a woven metal electrode and a solid alkali peroxide, the cathode positioned adjacent to the first fiberglass cloth, the woven metal electrode of the cathode positioned such that the first fiberglass cloth is between the woven metal electrode and the electrolyte solution and the solid alkali peroxide of the cathode positioned such that the woven metal electrode is between the solid alkali peroxide and the first fiberglass cloth, the aluminum anode and the cathode to participate in an electrochemical reaction to release energy from the cell upon the introduction of an aqueous activator.

Claim 2 (Canceled)

Claim 3 (Previously Presented) The electrochemical cell of claim 1, wherein the solid alkali peroxide is sodium peroxide.

Claim 4 (Previously Presented) The electrochemical cell of claim 1, wherein the introduction of the aqueous activator results in dissolution of the solid alkali peroxide in the aqueous activator, such that the dissolved alkali peroxide passes through the woven metal electrode.

Claim 5 (Previously Presented) The electrochemical cell of claim 3, wherein the sodium peroxide is solid granular sodium peroxide.

Claim 6 (Previously Presented) The electrochemical cell of claim 1, wherein the woven metal electrode is woven silver plated copper wire.

Claim 7 (Original) The electrochemical cell of claim 1, wherein the aluminum employed in the anode is at least 99.999% pure aluminum.

Claim 8 (Previously Presented) The electrochemical cell of claim 1, wherein the electrolyte solution is potassium chloride.

Claim 9 (Previously Presented) The electrochemical cell of claim 1, wherein the electrolyte solution is potassium hydroxide.

Claim 10 (Canceled)

Claim 11 (Canceled)

Claim 12 (Previously Presented) The electrochemical cell of claim 1, wherein the aqueous activator is water.

Claim 13 (Previously Presented) The electrochemical cell of claim 1, wherein the aqueous activator is an aqueous hydroxide solution.

Claim 14 (Previously Presented) The electrochemical cell of claim 1, wherein the aqueous activator is an aqueous salt solution.

Claim 15 (Canceled)

Claim 16 (Previously Presented) The electrochemical cell of claim 1, wherein an electrode bulk surface area of the metal electrode of the cathode and an electrode bulk surface area of the anode are substantially stoichiometrically matched to satisfy diffusion of ions and to minimize side reactions forming hydrogen and oxygen gases.

Claim 17 (Previously Presented) The electrochemical cell of claim 16, wherein the ratio of the electrode bulk surface area of the anode to the electrode bulk surface area of the metal electrode of the cathode is between 23% and 40%.

Claim 18 (Withdrawn) An electrochemical cell comprising an anode having an electrode bulk surface area and a cathode having an electrode bulk surface area, wherein the electrode bulk

surface area of the anode and the electrode bulk surface area of the cathode are substantially stoichiometrically matched to satisfy diffusion of ions and to minimize side reactions.

Claim 19 (Withdrawn) The electrochemical cell of claim 18, wherein the ratio of the electrode bulk surface area of the anode to the electrode bulk surface area of the cathode is between 23% and 40%.

Claim 20 (Withdrawn) The electrochemical cell of claim 18, wherein the anode is comprised of aluminum.

Claim 21 (Withdrawn) The electrochemical cell of claim 18, wherein the cathode is comprised of air.

Claim 22 (Withdrawn) The electrochemical cell of claim 18, wherein the cathode is comprised of hydrogen peroxide.

Claim 23 (Withdrawn) The electrochemical cell of claim 18, wherein the cathode is comprised of sodium peroxide.

Claim 24 (Withdrawn) An electrochemical cell comprising an aluminum anode spaced from a sodium peroxide cathode by an electrically insulating barrier, the anode having an electrode bulk surface area and a cathode having an electrode bulk surface area, wherein the electrode bulk surface area of the anode and the electrode bulk surface area of the cathode are substantially stoichiometrically matched to satisfy diffusion of ions and to minimize side reactions.

Claim 25 (Withdrawn) The electrochemical cell of claim 24, further comprising an electrolyte solution, the anode and the cathode positioned within the electrolyte solution.

Claim 26 (Withdrawn) The electrochemical cell of claim 24, wherein the sodium peroxide cathode further comprises a metal electrode and sodium peroxide.

Claim 27 (Withdrawn) The electrochemical cell of claim 26, wherein the sodium peroxide is enclosed in fiberglass cloth and is positioned such that upon dissolution, the sodium peroxide passes through the metal electrode.

Claim 28 (Withdrawn) The electrochemical cell of claim 26, wherein the sodium peroxide employed in the cathode is solid granular sodium peroxide.

Claim 29 (Withdrawn) The electrochemical cell of claim 26, wherein the metal electrode employed in the cathode is woven silver plated copper wire.

Claim 30 (Withdrawn) The electrochemical cell of claim 24, wherein the aluminum employed in the anode is at least 99.999% pure aluminum.

Claim 31 (Withdrawn) The electrochemical cell of claim 25, wherein the electrolyte solution is potassium chloride.

Claim 32 (Withdrawn) The electrochemical cell of claim 25, wherein the electrolyte solution is potassium hydroxide.

Claim 33 (Withdrawn) The electrochemical cell of claim 24, wherein the electrically insulating barrier is a membrane of fiberglass cloth located between the cathode and the anode to restrict direct contact.

Claim 34 (Withdrawn) The electrochemical cell of claim 24, further comprising an activator, the activator added to contact the cathode of the cell to initiate the electrochemical reaction within the electrochemical cell.

Claim 35 (Withdrawn) The electrochemical cell of claim 34, wherein the activator is water.

Claim 36 (Withdrawn) The electrochemical cell of claim 34, wherein the activator is an aqueous hydroxide solution.

Claim 37 (Withdrawn) The electrochemical cell of claim 34, wherein the activator is an aqueous salt solution.

Claim 38 (Withdrawn) The electrochemical cell of claim 34, wherein the activator is potassium chloride.

Claim 39 (Previously Presented) The electrochemical cell of claim 16, wherein the ratio of the electrode bulk surface area of the anode to the electrode bulk surface area of the woven metal electrode of the cathode is between 23% and 40%.

Claim 40 (Original) The electrochemical cell of claim 16, wherein the chemical reaction further comprises $2\text{Al}_{(s)} + 3\text{Na}_2\text{O}_{2(s)} + 6\text{H}_2\text{O} \rightarrow 2\text{NaAl}(\text{OH})_{4(aq)} + 4\text{NaOH}_{(aq)}$.

Claim 41 (Canceled)

Claim 42 (Canceled)

Claim 43 (Previously Presented) The electrochemical cell of claim 1, further comprising a second fiberglass cloth positioned between the woven metal electrode and the solid alkali metal peroxide of the cathode.